NON-PUBLIC?: N
ACCESSION #: 8911070020
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Vogtle Electric Generating Plant-Unit 1 PAGE: 1 OF 6

DOCKET NUMBER: 05000424

TITLE: Reactor Trip Following Spurious Closure of MSIV Due to Fuse Failure
EVENT DATE: 10/02/89 LER #: 89-018-00 REPORT DATE: 10/30/89

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 087

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: R.M. Odom, Nuclear Safety and Compliance TELEPHONE: (404)826-3201

COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: SB COMPONENT: ISV MANUFACTURER: R344
B SB FU X999
B SB 33 N007
X SB PS M235
X IG DET W120

REPORTABLE NPRDS: Y
N
N
N
N

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On 10-2-89, at approximately 0136 CDT, the No. 1 Steam Generator (SG) train "A" Main Steam Isolation Valve (MSIV) failed closed. At 0137 CDT, an automatic reactor trip occurred due to SG No. 1 reaching its low-low water level setpoint. A turbine trip, main feedwater isolation and auxiliary feedwater actuation occurred as designed following the trip.

The MSIV closed due to a blown fuse in the control logic power supply. Investigations revealed that grounding problems existed in the 125VDC control power distribution panel and indicated that a ground could have existed in a MSIV limit switch which showed signs of internal moisture related deterioration and arcing. The combination of the grounds in the control power distribution panel and the suspect ground in the MSIV limit switch likely caused the fuse to blow.

The grounding problems were corrected and the MSIV limit switch and fuse replaced. Corrective action to prevent recurrence includes completing a previously identified task of sealing the MSIV limit switches during the next refueling outage to prevent water intrusion.

END OF ABSTRACT

Component Failure Description appended on LER form.

A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(iv), since the event resulted in an automatic actuation of the Reactor Protection system (RPS).

B. UNIT STATUS AT TIME OF EVENT

At the time of the event, Unit 1 was in Mode 1 (Power Operation) at 87.5% of rated thermal power. The unit was being returned to full power following a power reduction for maintenance on the A train main feedwater pump. Additionally, Procedure 11889-C, "Severe Weather Checklist", had been initiated at 1836 CDT on 10-01-89 due to heavy rains and issuance of a tornado watch alert for the general vicinity of the plant.

C. DESCRIPTION OF EVENT

On 10-2-89, at approximately 0136 CDT, a "Main Steam Loop 1 Train A Isolation Valve Trouble" annunciator and a "Main Steam Isolation Valves Not Full Open" annunciator were received in the Unit 1 Control Room. The Reactor Operator immediately scanned the valve status indication lights on the main control board and recognized

that the No. 1 Steam Generator (SG) train "A" Main Steam Isolation Valve (MSIV), 1HV-3006A, had failed closed. However, before a manual reactor trip could be initiated, an automatic reactor trip occurred at 0137 CDT on SG No. 1 reaching its Low-Low water level setpoint. An Auxiliary Feedwater (AFW) actuation, a turbine trip, and a feedwater isolation occurred as designed following the reactor trip. Atmospheric Relief Valve (ARV) 1PV-3000 and SG safety valve 1PSV-3001 opened to control pressure in SG No. 1. Also, the No. 2 SG ARV, 1PV-3010, opened momentarily following the reactor trip. Upon reenergization, source range channel 1NI-31 indicated off-scale high. Moisture Separator Reheater (MSR) steam supply isolation valves 1HV-6015, 1HV-6030, 1HV-6179, and 1HV-6181 failed to automatically close and were closed manually. Also, Non-1E 13.8 kv bus 1NAA did not fast bus transfer from the unit auxiliary transformer to the reserve auxiliary transformer. The 1NAA bus did transfer on residual voltage bus transfer, so a trip of the corresponding reactor coolant pumps did not occur. The non-safety related (normal) chiller also failed to automatically restart and was restarted manually following the reactor trip. By 0213 CDT, the reactor was stabilized in Mode 3 (Hot Standby) and unit operating Procedure 12006-C, "Unit Cooldown to Cold Shutdown", was entered. Limiting Conditions for Operation (LCO's) were subsequently entered for MSIV 1HV-3006A and source range channel 1NI-31.

D. CAUSE OF EVENT

1. The direct cause of this event was the closure of MSIV 1HV-3006A. This occurred due to a blown fuse in the control logic power supply which apparently resulted from grounding problems found in 125VDC 1E distribution panels 1AD11 and 1AD12 and a suspected ground in a 1HV-3006A limit switch. Although the ground that existed in the MSIV control circuitry had cleared, the limit switch showed signs of internal moisture related deterioration, termination damage, and arcing indicating that a short to ground had occurred. It is believed that the grounds in the distribution panels and the suspected ground in the limit switch combined to blow the control logic power supply fuse.

2. The problem with source range channel 1NI-31 was traced to the detector which was found to have failed.

3. The failure of the MSR steam supply isolation valves to close automatically was traced to the common pressure switch which initiates the closure. The switch had apparently failed due to

water intrusion.

4. An investigation into the failure of the 13.8 kv bus, 1NAA, to fast bus transfer revealed no abnormalities with the circuitry or relay calibration. Testing of this bus is scheduled to occur during the next refueling outage.

5. The failure of the non-safety related (normal) chiller to automatically restart was investigated but a cause could not be found.

E. ANALYSIS OF EVENT

The MSIV went to its safe (fail close) position upon loss of power. Main Feedwater Isolation, AFW actuation and the reactor trip occurred as designed to bring the unit to a stable condition. Based on these considerations, there was no adverse effect on plant safety or the health and safety of the public as a result of this event.

F. CORRECTIVE ACTIONS

1. The grounding problems in the 125VDC distribution panels were corrected and the fuse in the MSIV control logic power supply was replaced. The covers for the MSIV Namco limit switches were removed and the one limit switch was found to have internal corrosion, arcing indications, and frayed conductors. This limit switch was replaced and the valve was subsequently verified to be operable. The Unit 1 MSIV limit switches were previously identified as requiring the addition of a conduit seal to prevent possible water intrusion through the conduit. This modification will be completed during the next refueling outage and should prevent any further moisture induced grounding problems.

2. The detector for source range channel 1NI-31 was replaced and the channel recalibrated.

3. The MSR steam supply isolation valve common pressure switch was reworked and recalibrated.

4. Testing of 13.8 kv bus 1NAA is scheduled to occur during the next refueling outage.

5. No corrective action is planned at this time for the non-safety related chiller failing to automatically restart since a problem can

not be identified. However, Engineering is investigating this failure.

G. ADDITIONAL INFORMATION

1. Failed Components

MSIV - Rockwell International 28" x 24" x 28" Equiwedge Gate Valve with A-290 Actuator

Fuse - Bussman 3A Type Fusetron FNQ-3 Dual Element

MSIV Limit Switch - Namco Catalog No. EA 180-32302

MSR Pressure Switch - Mercoid Model No. OPSW 7233-153

Source Range Detector - Westinghouse Corporation Model No. WL-23821

2. Previous Similar Events

None

3. Energy Industry Identification System Code

Main Steam System - SB

Chilled Water System - KM

Main Feedwater System - SJ

Auxiliary Feedwater System - BA

125 volt 1E DC Electrical System - EJ

13.8 kv non-1E Electrical System - EA

Plant Protection (Neutron Detection) System - JC

Incore/Excore Monitoring System - IG

Georgia Power Company

333 Piedmont Avenue
Atlanta, Georgia 30308
Telephone 404 526-3195

Mailing Address:
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201
Telephone 205 868-5581

the southern electric system

W.G. Hairston, III
Senior Vice President
Nuclear Operations

October 30, 1989

ELV-01003
0071

Docket No. 50-424

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
LICENSEE EVENT REPORT
REACTOR TRIP FOLLOWING SPURIOUS CLOSURE
OF MSIV DUE TO FUSE FAILURE

In accordance with 10 CFR 50.73, Georgia Power Company hereby submits the enclosed report related to an event which occurred on October 2, 1989.

Sincerely,

W. G. Hairston, III
WGH,III/NJS/gm

Enclosure: LER 50-424/1989-018

xc: Georgia Power Company
Mr. C. K. McCoy
Mr. G. Bockhold, Jr.
Mr. P. D. Rushton

Mr. R. M. Odom
NORMS

U. S. Nuclear Regulatory Commission
Mr. S. D. Ebneter, Regional Administrator
Mr. J. B. Hopkins, Licensing Project Manager, NRR
Mr. J. F. Rogge, Senior Resident Inspector, Vogtle

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